

ALL-IN-ONE POLISHING PROCESS FOR A SEMICONDUCTOR WAFER

Abstract

A semiconductor wafer has a top surface and an edge bevel surface, and a first material layer and a second material layer are respectively formed on the top surface and the edge bevel surface. A surface chemical mechanical polishing (surface CMP) process is performed to polish and remove portions of the first material layer down to a first thickness, and a rim CMP process is performed to completely remove the second material layer on the edge bevel surface down to the edge bevel surface thereafter to achieve a smooth surface of the edge bevel surface. Finally, a chemical cleaning process is performed to clean the edge bevel surface and the top surface, and the semiconductor wafer is dried thereafter.